Math: *Remember the story about the school that put on a fireworks show for their state winning football team and the BIG problems they ran into with unplanned consequences? Well, as you know two of our sports teams won the state championship this year and the student council has proposed that we consider having a fireworks show at the end of the year. Our principal is quite reluctant to even consider this idea because of the possible danger to people in the crowded stadium. He has also stated that he doesn't even begin to know how to design the fireworks display so that it is both safe and efficient, nor does he want to hire an expensive company to do all of the calculations. Lucky for our principal, you are now an expert in creating fireworks displays. Your task is to show our principal that a display of fireworks can be safe and that there will be no possibility of crowd injury. The information that he will have to consider is: how high in the air the fireworks will explode and where the rocket(s) will hit the ground.*

You will design a quadratic equation that will show our principal that the fireworks display will be safe. In addition to the equation, you will also write a proposal that will include a diagram of the path of the trajectory, labeling where the fireworks will explode and where the rocket(s) will hit the ground. Your proposal should include mathematical support that shows where people should be allowed to congregate for best viewing and overall safety. In addition, describe and analyze how a change in ANY of the terms in your quadratic equation could cause a change in your overall presentation, as well as possible injury to firework viewers.